401 Certification Requirements for Hydropower Licenses

Department of Ecology and Northwest Hydroelectric Association

June 30, 2003

Department of Ecology

Lacey, Washington

Overview of Ecology's Organizational Structure and Relationships during FERC Relicensing

Overview of Ecology's FERC Program

- **Work is cross program in nature, involves both Headquarter and Regional staff and management.**
- **Primarily Water Resources and Water Quality Programs, but may include the Shorelands and Environmental Assistance Program.**

Overview of Ecology's Organizational Structure and Relationships during FERC Relicensing (cont.)

Hierarchy and Relationships

Regional Water Management Teams

Determine staffing capacity, lead staff person, which program will develop 401, resolve project-specific issues.

Watershed Advancement Group

Resolve statewide, cross program issues for hydropower.

If you don't know who to contact:

Regional Directors are the best place to start:

- **Northwest Regional Office – Ray Hellwig (425) 649-7010**
  (Island, King, Kitsap, San Juan, Skagit, Snohomish, and Whatcom counties)
- **Southwest Regional Office – Beryl Fernandes (360) 407-6307**
  (Clallum, Clark, Cowlitz, Grays Harbor, Jefferson, Mason, Lewis, Pacific, Pierce, Skamania, Thurston, and Wahkiakum counties)
- **Central Regional Office – Polly Zehm (509) 457-7120**
  (Benton, Chelan, Douglas, Kittitas, Klickitat, Okanogan, and Yakima counties)
- **Eastern Regional Office- Rene Marc Mangin (509) 329-3516**
  (Adams, Asotin, Columbia, Ferry, Franklin, Garfield, Grant, Lincoln, Pend Oreille, Spokane, Stevens, Walla Walla, and Whitman counties)

Overview of Ecology's Organizational Structure and Relationships during FERC Relicensing (cont.)

Ecology Relationship to EPA on Hydro Projects

401 certifications are a state authority, with little interaction with EPA except:

- **As a public reviewer of documents;**
- **As lead for other jurisdictions, e.g. tribal reservations; (note: Whether Region 10, HQ or WA Operations Office does this is not clearly defined.)**
- **We have issued separate, but coordinated 401s.**
- **EPA may coordinate its review/comments on FERC's NEPA EA or EIS with Ecology.**

Overview of Ecology's Organizational Structure and Relationships during FERC Relicensing (cont.)

Ecology's relationships with other State and Federal Agencies in terms of developing terms and conditions for 401 certifications.

- **There is a lot of interaction with WDFW, USFWS & NOAA Fisheries to define and refine the "fish-related uses" of a water body.**
  - **This is generally done through collaborative (but lively) technical discussion with the utility, tribes, agencies and other fish managers and interests.**
- **There may also be interaction with the Interagency Committee for Outdoor Recreation (where water-based recreation uses need to be balanced with other uses).**
- **DNR and DOH have a role to play in some projects.**

Overview of Ecology's Organizational Structure and Relationships during FERC Relicensing (cont.)

When Does Ecology Participate in ALP Settlement Negotiations?

- Case-by-case decision, based on environmental and staffing considerations.
- Our ability to "be at the table" severely limited by lack of resources. This is getting worse, not better. More on this later in the workshop…
- Regional Water Management Teams will be making these decisions as projects come in the door.

Program Elements Affecting Hydropower

401 Water Quality Certification “101”

What is a water quality certification?

- **A statement from the state water pollution control agency that a project will conform to water quality requirements.**
- **It is issued in the form of an administrative order.**

How do you apply for certification?

- **Applicant submits a request letter.**
- **Within one year Ecology has to either approve, waive, or deny (applicant can withdraw and re-apply).**
- **Applicant provides supporting information.**

When should you apply for certification?

- **No later than the filing of the final license application is submitted.**
- **If the State Environmental Policy Act (SEPA) is required, the state will not act on certification until SEPA is done – this primarily affects projects in the CZM counties.**
- **Ecology can adopt NEPA to comply with SEPA.**
- **Public notice of 401 application is required (Chapter 173-225 WAC).**

What does the state consider in deciding whether to issue a certification?

- **Ecology needs "reasonable assurance" that project will meet water quality requirements.**
- **Ecology's key yardstick is the state water quality standards (Chapter 173-201A WAC).**

What conditions does Ecology place on a water quality certification?

- **Ecology can require any reasonable condition toward meeting all water quality standards.**
- **Can include adaptive management to meet standards within 10 years.**
- **401 conditions become mandatory license conditions. FERC may not reject or modify them.**

What are the boundaries of 401 conditions?

Section 401(d) says that states shall condition certifications with "…any other appropriate requirement of state law…"

Can applicants appeal a certification?

Certifications are issued in the form of an administrative order. They may be appealed to the state Pollution Control Hearings Board within 30 days of issuance of the decision.

Appeals are through the state courts, not the federal courts.

Ecology's 401 Dam Guidance

Today we'll cover:

- What it is
- What it is not
- Schedules
- Contents
  - focus on technical
  - procedural
  - expectations
- Contacts

Ecology's 401 Dam Guidance

WHAT IT IS:

Reference materials for staff and managers to successfully and efficiently write defensible Clean Water Act 401 certifications.

WHAT IT IS NOT:

It is not a document to be rigidly followed under all situations.

Ecology's 401 Dam Guidance

Working with utilities
Schedule in 2003--

- Initial consultation with utilities: June 30
- Draft for utility's Review: November 1
- Guidance out for use: December 31

Ecology's 401 Dam Guidance

Table of Contents:

1. How Ecology interacts with the FERC process when developing 401 certifications.
2. How Ecology evaluates ability to meet water quality standards—the technical portion.
3. Checklist of Ecology's expectations for applicants.
4. 401 boilerplates to pick and choose from.
5. Technical and legal summaries and references.

Ecology's 401 Dam Guidance

1. How Ecology interacts with the FERC Process when developing 401 certifications.
   - Descriptions of the FERC process
   - Internal coordination—who does what
   - Workloads
   - Studies
   - Water Quality Attainment Plans

Ecology's 401 Dam Guidance

2. How Ecology evaluates ability to meet water quality standards - the technical portion.

   <u>Information needs:</u>

   - Timing
   - Data quality
   - For each water quality parameter
     - characterization
     - source identification
     - evaluation of improvements

Ecology's 401 Dam Guidance

3. Checklist of Ecology's Expectations for applicants

- ☑ **Contacts**
- ☑ **Ecology data/info needs**
- ☑ **Expectations of data quality, timing, communications**
- ☑ **Correcting water quality problems**
- ☑ **Deliverables, timelines, decision points**
- ☑ **Adaptive management plans**
- ☑ **Re-openers**
- ☑ **Settlement Negotiations**
- ☑ **TMDL Requirements**

Ecology's 401 Dam Guidance

4. 401 Boilerplates
   - Language to pick and choose from

5. Technical and legal summaries and references
   - Summaries from key court cases
   - A web-based format--links to references are found throughout.

Ecology's 401 Dam Guidance

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Ecology Program elements and development of guidance

New Water Quality Standards

- **To be adopted by tomorrow July 1st**
- **Will not be effective for federal actions until approved by EPA (60 days to approve – 90 to disapprove)**
- **EPA will need to go through consultation with the federal fish agencies before they provide final approval**
- **Expect approval by this fall**

What do new standards say that are of interest to dam operators?

Ecology Program elements and development of guidance

New Water Quality Standards

Temperature 7-DADMax

Char	**12C (53.6F)** 9C when spawning not protected
Salmon and Trout Spawning, Core Rearing, and Migration	**16C (60.8F)** 13C when spawning not protected
Salmon and Trout Rearing and Migration Only	**17.5C (63.5F)**

Ecology Program elements and development of guidance

New Water Quality Standards

WAC 173-201A-160(5)
Compliance Schedule for Dams (see handout)

- **Dams need to endeavor to meet standards.**
- **If standard can't be achieved, dams can pursue site-specific standard or UAA.**
- **Certification can be issued based on a compliance plan that follows this direction.**

Ecology Program elements and development of guidance

New Water Quality Standards

WAC 173-201A Section IV – Tools for Application of Criteria and Uses

- **Variances**
- **Site Specific Criteria**
- **Use Attainability Analysis**
- **Water Quality Offsets**

Ecology Program elements and development of guidance

New Water Quality Standards

- No changes from existing criteria for D.O.
- No Change from existing criteria for bacteria
- Not moving forward with specific criteria to protect agricultural water supply

Ecology Program elements and development of guidance

New Water Quality Standards

Next Steps

- **Package for Federal Approval**
- **Guidance Development**
  - How we will apply spawning criteria
  - Use Attainability Analysis
  - Antidegradation

Ecology Program elements and development of guidance

TMDLs – nexus to 401 certifications and timing.

- **The 401 WQ Certification may include other water quality improvement strategies such as TMDLs for impaired parameters in the surface water of concern.**
- **Key relationships are timing and parameter of concern associated with the TMDL.**
- **e.g., Columbia River Temperature TMDL**
  - **Ecology will provide a mechanism in individual 401 certifications to incorporate the waste load allocation as determined in the TMDL as a condition of the certification.**
  - **Ecology and the License Applicant will need to collaborate on how this is accomplished if the TMDL is not completed at time of the 401 WQ certification submittal.**

Ecology Program elements and development of guidance

Other Permits and Approvals:

Coastal Zone Management Act (CZMA) Consistency Determination

- **Only applies in the15 coastal counties: Clallam, Jefferson, Grays Harbor, Mason, Thurston, Pacific, Wakiakum, San Juan, Island, Kitsap, Pierce, King, Snohomish, Skagit, Whatcom**
- **Triggers local (county or city) shoreline action, which**
- **Triggers SEPA for the hydro project**

Ecology Program elements and development of guidance

Other Permits and Approvals (cont):

State Environmental Policy Act (SEPA)

- Water quality certifications are exempt from SEPA.
- SEPA triggered if certain other state permits are also required (such as CZMA/Shoreline actions).
- Ecology can adopt the federal NEPA document to satisfy requirement, if the NEPA document meets the SEPA requirements. (this is the goal, but has been a big challenge…).

Ecology Program elements and development of guidance

Other Permits and Approvals (cont):

State water rights

- Diverting and storing water requires a state water right, even if project is consumptive for only a short reach.
- Without a water right, hydro project owners don't protection against subsequent appropriators.
- Water rights not usually required for relicensing.

Ecology Program elements and development of guidance

Access to information.

- Web-site

Strategy for constructing a 401 certification

Water Quality Standards

“Narrative” versus “Numeric”

Pat Irle
Washington Department of Ecology

“Elkhorn” Supreme Court Decision used the words:

“Narrative” for designated uses

“Specific numerical criteria”

Colloquial usage:

“Narrative” standards use words

“Numeric” standards use numbers

“NARRATIVE”

Designated Uses
WAC 173-201A-200 to 260

Examples:

- **Aquatic life**
- **Recreational uses**
- **Miscellaneous**
- **Lake nutrients**
- **Toxics and aesthetics**
- **Wetlands**

Designated Uses
WAC 173-201A-200

Aquatic Life:

"Narrative" standards include:

- salmonid rearing and migration

"Narrative" conditions might include:

- instream flows
- ramping rates

Designated Uses
WAC 173-201A-200

Water Contact

"Narrative" standards specifically include swimming and fishing

"Narrative" conditions might include:

- **safety of swimmers from rapid changes in flow**

Designated Uses
WAC 173-201A-200

Miscellaneous

“Narrative” standards include wildlife and boating

“Narrative” conditions might include:

- lake levels for access to docks
- flows for boating

Anti-degradation

"Purpose… is to:

1. **Restore and maintain the highest quality of the surface waters of Washington;**
2. **Describe situations under which a water quality can be lowered from its current condition; etc… "**

“NUMERIC”

Designated Uses
WAC 173-201A-200 to 260

Examples:

- **Aquatic life**
- **Recreational uses**
- **Miscellaneous**
- **Lake nutrients**
- **Toxics and aesthetics**
- **Wetlands**

Subcategories of Uses for a Designated Use

Examples:

Aquatic life (fresh water)

- Char
- Salmon and trout spawning, rearing and migration
- Salmon and trout rearing and migration only
- Indigenous warm water species

Specific **("Numeric")** Criteria for a Designated Use

E.g., for salmon rearing & migration:

- **Temperature**
- **Dissolved Oxygen**
- **Turbidity**
- **Total Dissolved Gas**
- **pH**

Specific **("Numeric")** Criteria for a Designated Use

E.g., for salmon rearing & migration:

- **Temperature** <0.3°C above natural
- **Dissolved Oxygen** <0.2 mg/L change
- **Turbidity** <10 NTU over background
- **Total Dissolved Gas** < 110%
- **pH** <0.4 units change

Temperature Criteria
for salmon rearing and migration

Human-caused variation of:

0.3°C **when natural temperatures are above a trigger value** (i.e., 17.5°C for salmon rearing)

28/(T+5)°C (or a maximum of 2.8°C) **when temperatures are below the trigger value**

Adaptive Management

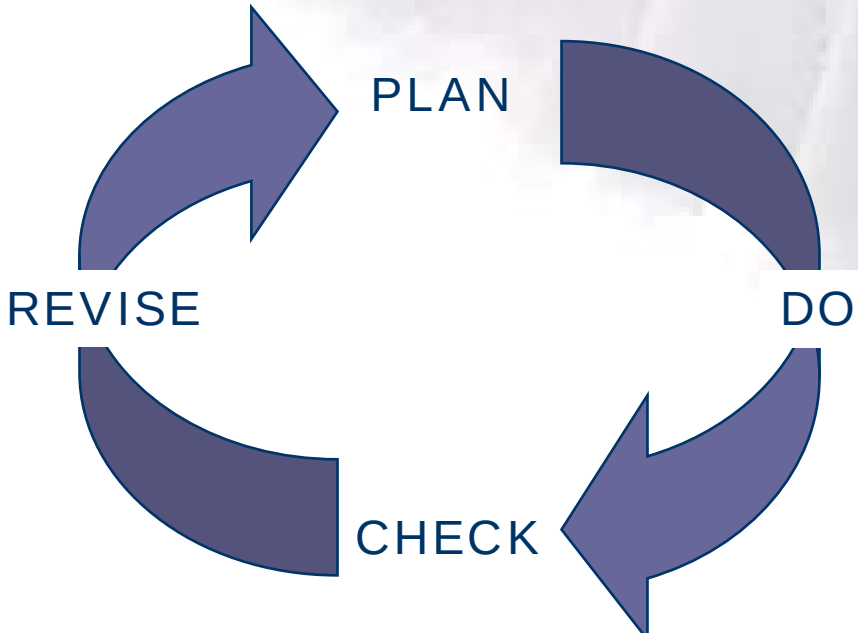
Basic Approach:

- **Set clear goals and objectives for each party that can be measured**
  - **Ecology – Meet Water Quality Standards**
  - **Licensee – Optimize hydropower generation while meeting other system requirements (e.g. ESA, Flood Control, Irrigation, etc.)**
- **Focus on the specific problem(s) and identify possible strategies to address them**
- **Implement a Quality Improvement Cycle**

Adaptive Management

Quality Improvement Cycle can be defined into four basic steps of Plan, Do, Check and Revise

ADAPTIVE MANAGEMENT APPROACH
FOCUS/ANALYSIS



Adaptive Management

Develop a plan to address the parameters of concern

- What are the current operation or structural conditions that affect the parameter(s)
- What changes can be implemented now that are reasonable and prudent?
- What changes can be implemented in the future?
- What changes are economically just not feasible and why?
- Develop a monitoring program to determine the effectiveness of the changes
- Develop a decision making flow diagram and end points
- Document the results

Adaptive Management

Implement the Plan

- **Implement the plan for an agreed length of time.**
- **Document the activities and the results produced.**

Check the progress of the Plan

- **Monitor the progress and effectiveness of the plan.**
- **Study the results in comparison with the original data and assumptions.**
- **Propose alternative solutions or actions.**
- **Checking can go on throughout all phases of the improvement cycle**

Adaptive Management

Revise

- **Revise the plan or strategy and implement the recommended strategies**
- **Determine what else can be done to improve the situation.**
- **Document and communicate efforts to achieve compliance**
- **Involve others in the decision making**
- **Improvements or outcomes can be measured (qualitative or quantitative)**
- **Determine if another improvement is possible**
- **Repeat as necessary**

Total Dissolved Gas (TDG) and 401s

- **TDG is a major water quality issue for many dams.**
- **Air is entrained during spill, saturating the water.**
- **Bubbles re-emerge in the bodies of aquatic organisms.**
- **Standard is 110%. Have exception for fish juvenile passage so they can avoid turbines in spill.**

Total Dissolved Gas and 401s

- **An exception in the standards allows for higher gas with gas abatement—adaptive plans to reduce gas in the long-term.**
- **These plans are essentially a compliance schedule or adaptive management process.**

Total Dissolved Gas and 401s

- **Have worked with Mid Columbia PUDs and the Corps on gas abatement planning since 1995.**
- **This planning process is the best model we have for how to adaptively work with other utilities on a water quality problem where the exact outcome of improvement effort can not be known. So we work toward meeting water quality standards adaptively, over time.**

Total Dissolved Gas and 401s

Steps in an approvable abatement plan include a compliance schedule:

- **Goal -- meet water quality standards.**
- **Identify strategies to meet standards:**
  - **Modeling reports engineering plans for structural and operational improvements;**
  - **Identify next improvement and when it will be taken**
  - **Make the modification;**
  - **Monitor to assess success;**
  - **Identify the next step to be taken if the first step missed the target of meeting standards.**

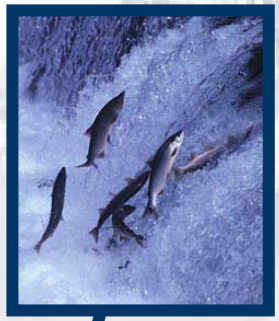
Total Dissolved Gas and 401s

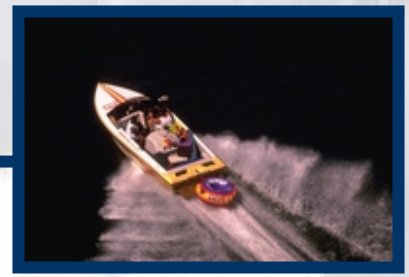
- Gas abatement approvals are up to five years.
- Points of compliance is for spill water only, not upstream sources.
- Quality control plans are evaluated so they are consistent with a basin-wide standard.
- Utility outlay for improvements can be substantial. In some situations, potential for increased water for power production can be significant.

Balancing Different Purposes/Driving Forces

- **Protection and maintenance of existing beneficial uses**
- **Compliance – Adaptive Management in real time**
- **Tips regarding successful consultation**
  - **Lessons learned, etc.**

Balancing Beneficial Uses





Balancing Beneficial Uses

Alternative Ways to Fund Ecology Personnel to Expedite Participation in FERC Proceedings

Utilities can contract under cost reimbursement or an intergovernmental contract.

- **Current funding agreements.**
  (The Chelan PUD experience – Greg Carrington & Chris Hall.)

Potential alternative sources of funding:

- Modify power license fee – requires legislation
- Support reimbursement of state costs by FERC
- Others???

Where do we go from here?